DOCUMENT RESUME

ED 341 711 TM 017 890

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TITLE Quality in Government: The Army Intern Intake Survey.
PUB DATE 91
NOTE 40p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Armed Forces; Cognitive Tests; Comparative Analysis; Government Employees; *Internship Programs; *Occupational Tests; Personnel Evaluation; *Personnel Selection; Pilot Projects; Profiles; *Screening Tests; Surveys; *Test Construction
IDENTIFIERS *Army Intern Intake Survey; *Civilian Personnel

ABSTRACT

The development of the Army Intern Intake Survey (AIIS) is described. The AIIS focuses on the Army civilian intern program, a vehicle for entry-level employees to progress in Army civilian jobs, which produces a profile of past and current interns. The AIIS will identify changes in intern quality over time and will make comparisons of Army interns and military and civilian counterparts possible. A review of all available assessment instruments resulted in a pool of possibilities, which was reduced to three: (1) the Wonderlic Personnel Test, a test of general cognitive ability; (2) the Officer Selection Battery, also a test of cognitive ability; and (3) the Army Background Form, an inventory of employee characteristics. Site visits and pilot tests refined survey administration. For fiscal years 1980 through 1988, 4,728 completed surveys were returned, representing a 62% overall participation rate. This sample was representative, and forms a basis for evaluating civilian interns. One table and 13 figures illustrate the development process, and a 6-item list of references is included. (SLD)

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QUALITY IN GOVERNMENT: THE ARMY INTERN INTAKE SURVEY

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Quality in Government: The Army Intern Intake Survey[1]

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Anecdotal evidence suggests that the recruitment and retention of high quality personnel in the Government has become problematic (National Commission on Public Service, 1989). For example, the Federal Executive Institute Alumni Association survey showed that 50% of the respondents thought the quality of Federal workforce was declining, while only 14% thought it was improving in the past 10 years (Government Executive, 1990). The survey solicited opinions on quality, defined as general ability, education, training, and experience, from managers in the Federal government.

Hard data to substantiate these claims is nearly non-existent. Clark (1989) notes that while surveys indicate that quality is declining among the workforce "there is simply no large set of data to prove the case, merely scattered anecdotes" (p.80). There is also no common framework for collecting and analyzing that data. There is also no strategy for ensuring workforce quality once baselines have been established.

U.S. Department of the Army Response

In response to concerns about attracting high quality civilian applicants to the U.S. Department of the Army, the Intern Intake Survey was developed. Its focus is the Army civilian intern program, one of the main vehicles for entry-level employees to progress to full-performance levels in professional and administrative civilian jobs in the Army. The survey produces a profile of past and current interns on a variety of quality measures. The survey is designed to identify changes in intern quality over time, to compare Army interns to their military and private sector counterparts, and to compare different types and sources of entry-level employees. The Intern Intake Survey also examines trends in the opinions of interns on topics pertinent to their internships.

Background

Army's intern program is part of a broad-based career management system used to recruit and develop high-potential employees for placement Army-wide. The objectives of the intern

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[1] The opinions expressed herein are those of the authors and do not reflect official Department of the Army policy.

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program are to establish planned intake of personnel to meet career program staffing needs, and to give these employees the knowledges, skills, and abilities required to advance and to perform successfully in target-level positions in specific career programs. Interns complete highly structured training and development programs within specified time periods, as specified in a Master Intern Training Plan (MITP), and occupy positions in career programs with known potential for noncompetitive promotion to target grade levels.

Functional trainees are another type of entry-level employee. Functional trainees are not guaranteed the broad-based training established in the MITP; they are hired and developed to meet local staffing needs. Functional trainees served as a control group for the interns in the Intern Intake Survey.

Objectives

The Intern Intake Survey establishes for the civilian work force a system similar to that used successfully by the military to support resourcing and track the quality of its force. The military uses educational and cognitive test score data to describe its force. It then relates these data to performance and retention indicators. The Intern Intake Survey uses similar types of information. In the future, through the Civilian Forecasting System (CIVFORS), these quality measures will be linked to performance, progression, and retention data.

Data from the survey supports resourcing and policy decisions concerning recruitment and training and provides answers to Congress concerning the intern program and the need for funding support.

Assessment Battery Development

The Intern Intake Survey operationally defines quality as "performance on a set of psychological (i.e., cognitive) and educational achievement measures."

The first major task in the development of the system was the designation of the measures to be used. It was determined that a battery of several instruments was necessary as no single instrument would adequately measure "quality" as defined above. The project team reviewed a number of sources in surveying all available assessment instruments. This review included textbooks on educational and psychological measurement and vocational counseling; professional journals; special publications on vocational, mental, and personality tests (e.g., O.K. Buros, Mental Measurement Yearbooks); test publisher catalogs; and professional contacts in other Federal agencies.

Each assessment instrument was evaluated on four factors. The first was purpose/intended use of the test. This screen was done to ensure that the purpose of the instrument was consistent with the purpose of the survey. For example, a projective psychological test or a clinical instrument such as the Minnesota Multiphasic Personality Inventory (MMPI), would not be compatible with the purpose of determining workforce quality. The second factor was the psychometric qualities of the instrument. The reliability, validity, and availability and appropriateness of norms were evaluated via the testing manuals and testing literature. The third factor was practical limitations. This included administration time, special training required, special equipment needed, ease of scoring, and cost. The final evaluation involved the personal and professional judgement of the project staff. Factors given consideration in this evaluation included the provision of feedback and the potentially offensive nature of the instrument, among other variables. The instrument was rejected if feedback would require a counseling session or other large administrative burden or if the instrument contained items that would be potentially offensive to some or all of the participants.

At the conclusion of the initial instrument screening, cognitive, personality, and biographical instruments remained among the pool for inclusion. Table 1 lists the instruments and their publishers.

These instruments were then examined for readability, fairness (freedom from adverse impact), practicality, and other qualities that would warrant inclusion of the instrument in the battery. Also necessary for the final decision of inclusion was an examination of the way in which the instruments combined into a battery. Different combinations were examined with regard to total testing time, administrative ease, and user acceptance. Also examined was how complimentary or redundant the measures were in concert.

Assessment Battery

Measures

Ultimately, the decision was made to exclude all personality measures because they did not measure quality and because of associated administrative and interpretive problems. The biographical measures were also excluded due to workload and coordination problems. The final battery consisted of three instruments: two cognitive ability measures (the Wonderlic Personnel Test and the Officer Selection Battery) and an internally developed questionnaire to collect demographic and opinion data (Army Background Form).

Wonderlic Personnel Test. The Wonderlic Personnel Test is a

group test of general cognitive ability used for personnel selection, program evaluation, and research. The instrument is short and easy to administer. Test administrators need no special training or certification. It has 50 questions and a 12 minute time limit. Compared with other instruments reviewed, it is inexpensive (approximately $1.00 per test).

The psychometric qualities of the test supported its use. The reliability estimates are impressive (test-retest range from .82 to .94, parallel forms range from .73 to .95) and the correlations with longer estimates of cognitive ability are high (e.g., .91 with the Wechsler Adult Intelligence Scale). There is a large body of evidence supporting the construct and criterion-related validity of the Wonderlic (e.g., J. E. Hunter, The Wonderlic Personnel Test as a Predictor of Training Success and Job Performance). The level of difficulty is appropriate to our target audience. In addition, it has an excellent normative base from private industry, allowing for a comparison of Army employees to their private sector counterparts.

One area of concern about the Wonderlic is test scores in relation to minority employees. Research shows that, on the average, Blacks and Hispanics score significantly below Whites. While validation research has shown that these differences are not due to bias, they do have implications for the use of the data. There are no significant difference in test scores between male and female subjects.

Officer Selection Battery. The Officer Selection Battery is also a group test of general cognitive ability. The OSB consists of 110 verbal, quantitative, spatial visualization, problem solving, general information, mechanical information, and social problem solving items. The OSB has a generous time limit of 90 minutes though most test takers complete it in 60 minutes. The test was developed in 1982 by the U. S. Army Research Institute for the Behavioral and Social Sciences (ARI) to be used as part of the pre-commissioning process for ROTC Cadets. Following its validation, it was approved for use in 1986. The OSB has a normative base of ROTC cadets that allows for a comparison of Army civilian employees to their military counterparts. Because it was developed by Army, there are no procurement costs. Specially-appointed Test Control Officers (TCOs) are needed to administer the test and the materials are treated as controlled documents that require secure handling.

The test uses an Army standard score of 100 with a standard deviation of 20. The internal consistency reliability coefficient is .92, despite the intentionally diverse nature of the test content. ARI validated the OSB against ratings of officer potential provided by professors of Military Science. The uncorrected coefficient was .26. The OSB was also validated against scores in the Officer Basic Course, a requirement of all

newly commissioned officers, and the uncorrected correlation coefficient was .52.

ARI also reported on several other analyses (e.g., fairness), and reports that the OSB is empirically and content valid, of comparable validity for ethnic and gender subgroups, with no indication of differential validity or regression. Six different measures of readability were conducted; the OSB is written at a ninth grade level.

As was the case with the Wonderlic, race and gender differences were examined for the OSB. On the OSB, Blacks and Hispanic score significantly lower than Whites; there are no significant differences between male and female cadets in the normative sample.

The Army Background Form. Two versions of the Army Background Form were developed - one to be completed in the first data collection by those who have completed their internships (Intern Graduates) and one to be completed in each subsequent data collection by employees in their internship (Current Interns).

The Army Background Form consists of four sections: Demographics, Internship Information, Opinion of Internship, and Educational Information. The Demographics, Internship Information, and Educational Information are virtually identical in the two versions; the Opinion of Internship section is greatly expanded in the Graduate form.

The Demographics section solicits information on organizational unit, career program (e.g., Civilian Personnel Management, Engineers and Scientists), occupational series, grade, supervisory status, race/national origin (RNO), and gender. Internship Information includes questions on type of entry and date of entry into the career program as well as on recruitment.

Among the questions included in the Educational Information section are standardized test scores (SAT, ACT, GRE), level of education, name of undergraduate institution granting degree, undergraduate grade point average (GPA), and undergraduate and graduate majors and minors. The basic question posed of these variables was "Is Army getting high quality graduates from highly-rated educational institutions?"

Quality ratings and rankings of schools is a much debated area in academia. The only wide-scale, comprehensive rating of

colleges is the Gourman Report[2]. The Gourman Report has received extensive press and has met with mixed review. It is being used here as the measure of school quality because it provides a single numerical index for nearly 1300 American colleges and universities. It also rates more than 100 academic departments, listing the top schools for each subject area.

During the marketing, senior managers from each of the career programs were asked to indicate the college majors that are most relevant to their career programs. This information is used to analyze the percentage of college graduates with career program-relevant degrees entering each career program. Using the Gourman ratings, the percentage of those holding career program-relevant degrees from the top schools in that subject area is also determined.

The questions concerning standardized test scores such as the SAT were include at the request of management. Initially, it was thought that existing standardized test scores could eliminate the need for the cognitive tests (Wonderlic and the OSB). There were several problems with this idea. Data would not be available for all employees because not everyone takes these tests. Additionally, project staff questioned the reliability of self report data of this type and investigated the availability of the data through other means. Discussions were held with the Educational Testing Service (ETS) in an effort to obtain the scores directly. Direct acquisition proved to be too costly and cumbersome to merit inclusion in the survey.

Undergraduate grade point average was one of the self-report variables examined for accuracy during the pilot tests. At that time it was determined that self-report was generally accurate with slight discrepancies in both directions, that is, employees did not tend to inflate their GPAs.

The Opinion of Internship section includes questions on the quantity and quality of formal and on-the-job training, the sources and usefulness of career guidance and career program information, and the value of internships in preparing employees for journey-level and leadership positions.

Marketing and Coordination

Marketing of the survey was completed through a series of memoranda and briefings. The survey was coordinated through both organizational and functional channels. Thus, the survey gained the support of the Secretary of the Army and other top

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[2]Gourman, J. (1989). The Gourman report: a rating of undergraduate programs in American and international universities (7th ed.). Los Angeles: National Education Standards.

management, as well as the Civilian Personnel Directors and Equal Employment Opportunity Directors of the major commands and the senior managers in each civilian career program.

The survey was publicized extensively to employees and other interested parties through a series of briefings, articles, and information papers. The survey was featured at a presentation at the Army's College Relations and Recruiting Pilot Workshop in May 1989. The survey was also promoted through Perspective, a newsletter that provides personnel information for commanders; Personnel Bulletin, a newsletter for personnelists; and Proponent Bulletin, a publication for personnel proponents.

Throughout the development and marketing of the survey, close coordination was maintained with the Equal Employment Opportunity (EEO) community. This was done to alleviate participants' fears concerning the use of the data and to ensure the proper interpretation of the cognitive data due to the expected racial differences in scores.

Legal guidance was sought from the Judge Advocate General and consultations were held with Management-Labor Relations specialists during the development of the survey. The national unions were informed in the development phase and Civilian Personnel Offices (CPOs) were encouraged to inform local unions prior to data collection.

Feedback

The provision of feedback to survey participants was extensively discussed during the development and staffing process. While individual feedback would provide an incentive to participate, it is also potentially dangerous, especially to those employees who score low on cognitive tests yet are performing well on the job. In addition, trained personnel were not available to provide in-person feedback Army-wide. Thus, it was decided that individual feedback would not be given automatically to all participants. However, a mechanism was established to provide feedback to those employees who requested it. Requested feedback was sent to home addresses to ensure confidentiality of results.

Site Visits and Pilot Tests

Site visits were conducted at two installations in the metropolitan Washington area. The purposes of these visits were to review draft materials and to interview participants and CPO staff to gauge reactions and improve survey materials. Site visit participants reviewed drafts of informational letters to participants, the Privacy Act statement, and the Army Background Forms. In addition, the CPO role and workload were discussed with CPO staff.

Two pilot tests were conducted during the development of the survey. The purpose of the two pilots were somewhat different. The purpose of the first pilot, which utilized a small sample, was to evaluate intern reaction, administrative procedures, and the draft Army Background Form. The purpose of the second pilot test was to evaluate administrative procedures for large-scale implementation and to generate preliminary data.

The pool for selection of the pilot test sites consisted of the ten largest survey population sites. The sites were analyzed to determine the representativeness of each to Army in terms of RNO, gender, and career program distribution. Two of the most representative sites were used.

Forty seven interns participated at the initial pilot test which was conducted at the U.S. Army Aviation Support Command/Troop Support Command (AVSCOM/TROSCOM). Group interviews were conducted with the participants and individual interviews were conducted with CPO staff members and the TCO. Self-report data obtained from the Army Background Form, to the extent possible, was confirmed against the participants' Official Personnel Folders. This task, arduous as it was, was done to check the accuracy of self-report data. The interviews and the data checks resulted in several changes to the Army Background Form.

As a result of the AVSCOM/TROSCOM Pilot Test, the survey administration details were finalized. The administration time, originally estimated at 4 hours, was revised downward to 2 1/2 hours. A draft script for the administrator was used; this was refined during the course of the pilot. Two different orders of administration of the survey instruments were tested. In the first of the two sessions, the Army Background Form was administered first; the second session, began with the tests. The best order was judged to be the Army Background Form, followed by the Wonderlic, followed by the OSB. This order allows for the Privacy Act Statement to be given with the Army Background Form and allows them to express their opinions upfront. The Wonderlic is second because it is short and has a definite time limit. There should be no fatigue effect on the OSB, as would be the case were the instruments reversed. The OSB is last because it is longer and without a defined time limit. Participants may work at their own pace and leave when they are finished. This sequence makes optimal use of the participants' time and should provide the best possible data.

The second pilot test of the survey was conducted at the U.S. Army Missile Command (MICOM), the largest sample site in the survey. The procedures were similar to the first pilot, such as confirmation of self-report data and reaction interviews.

The major lesson learned in this pilot was the importance of active management support at all levels to ensure employee participation. There was a reluctance on the part of many employees to participate either because they did not think the survey was important or because they were skeptical about the use of the data. Anonymity may have helped in this regard but the survey's secondary purpose, to link the data to CIVFORS to track career progression and retention, necessitated the request for social security numbers (SSN). A Privacy Act statement was included informing employees that disclosure of SSN was optional. Some employees, however, felt that since they had been name requested and had to report to a central location to complete the survey, anonymity was not possible, regardless of the Privacy Act statement. To solicit management support, headquarters management sent personal letters to local management encouraging support and participation.

Sampling

Sampling was accomplished so that conclusions could be made by type of entry level employee (intern or functional trainee), and fiscal year of entry into the career program. This sampling allows us to examine changes in quality over time and differences among types of trainees. Employees within each cell were chosen randomly.

No effort was made to sample on other variables such as career program or command. Such sampling, while providing a more complete picture of workforce quality in the Army, goes beyond the stated purposes of the survey and would have greatly increased the sample size, thus increasing the workload and cost associated with the survey. It is important to note, however, that future data collection, beginning with FY89 hires, will not be samples; the entire population will complete the survey. This will allow for valid conclusions to be made about subgroups within the population.

Civilian Personnel Offices were instructed to collect data from all chosen participants. While no attempt was made to oversample to achieve cell target numbers, where possible, alternative names in the same cell were given to CPOs so that sufficient data could be collected. That is, the CPOs were given all the names in a given cell with the randomly chosen names highlighted. They were asked to schedule the highlighted employees first and substitute non-highlighted employees if the original employee was not available. The expectation was that data would be collected from 100% of the target number for each cell. Oversampling was not employed for the survey because it was felt that the workload burden, especially on large CPOs, should not be unduly increased and project staff were confident that 100% participation would be achieved.

Returns

The total number of completed surveys returned for FY80 through FY88 intake was 4728. This included the FY80 through FY88 participants in the AVSCOM/TROSCOM pilot and the MICOM pilot as well as those from the Army-wide implementation. Completed returns were received from 129 CPOs (84% of all CPOs). The average return rate per participating CPO was 64%; the overall participation rate was 62%. Despite a lower than anticipated participation rate, the sample was representative and there did not appear to be any non-response biases. Some modifications to the data analyses were necessary, for example, a two-way break on both type of employee and source of intake had to be analyzed in three year groups not by individual year.

Illustrative Results

An enormous amount of data was collected for the survey. Figures 1 through 13 are examples of the results of some of the analyses. Figure 1 is a correlation matrix showing the relationships among the quality variables. Figures 2 through 7 depict each quality indicator separately, showing means and distributions and, if available, normative comparisons. Figures 8 through 11 illustrate comparisons that may be done across the indicators. For example, Figure 8 shows trends over time and Figure 10 compares internal and external hires. Figures 12 and 13 are examples of a secondary analyses. Comparisons among occupational groups showed that the scientists and engineers groups were different from all other occupational groups. Internal and external candidates were then analyzed separately for these two groups (Figure 12) as were standardized test scores (Figure 13).

Table 1

INSTRUMENT	PUBLISHER
Wonderlic Personnel Test (WPT)	E.F. Wonderlic
Professional Employment Test (PET)	Psychological Services
Professional and Administrative Career Examination (PACE)	U.S. Office of Personnel Management
Officer Selection Battery (OSB)	U.S. Department of the Army
Myers-Briggs Type Indicator	Consulting Psychologists Press
Leadership Ability Evaluation	Western Psychological Services
Fundamental Interpersonal Relations Orientation - Behavior	Consulting Psychologists Press
Sixteen Personality Factor Questionnaire (16PF)	Institute for Personality and Ability Testing
California Psychological Inventory	Consulting Psychologists Press
Applicant Background Assessment	U.S. Office of Personnel Management
Supervisory/Managerial Profile Record	Richardson, Bellows, Henry & Company

QUALITY INDICATORS CORRELATION MATRIX

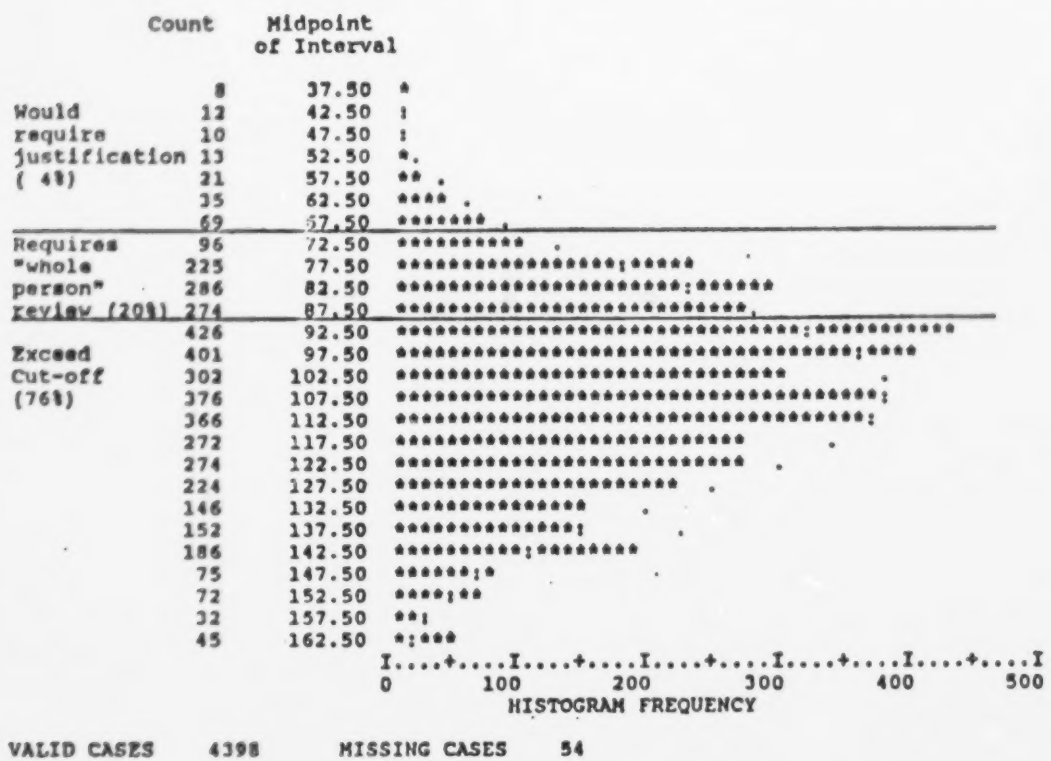
	OFFICER SELECTION BATTERY	WONDERLIC PERSONNEL TEST	GRADE POINT AVERAGE	SCHOOL QUALITY	EDUCATION LEVEL	EDUCATION QUALITY
OFFICER SELECTION BATTERY	1.0000 (4398)	.6822 (4392)	.0149 (3168)	.2741 (2939)	.2943 (4344)	.2366 (2888)
WONDERLIC PERSONNEL TEST		1.0000 (4445)	.1014 (3202)	.1919 (2966)	.1539 (4391)	.2303 (2915)
GRADE POINT AVERAGE			1.0000 (3208)	-.1602 (2921)	.0395 (3189)	.5704 (2921)
SCHOOL QUALITY				1.0000 (2972)	-.0235 (2958)	.7111 (2921)
EDUCATION LEVEL					1.0000 (4398)	.0384 (2907)
EDUCATION QUALITY						1.0000 (2921)

FIGURE 1

ROTC OFFICER SELECTION BATTERY:
ALL FY80–FY88 PARTICIPANTS

OVERALL: 108.51

- COLLEGE GRADUATES: 114.51
- HIGH SCHOOL GRADUATES: 96.76



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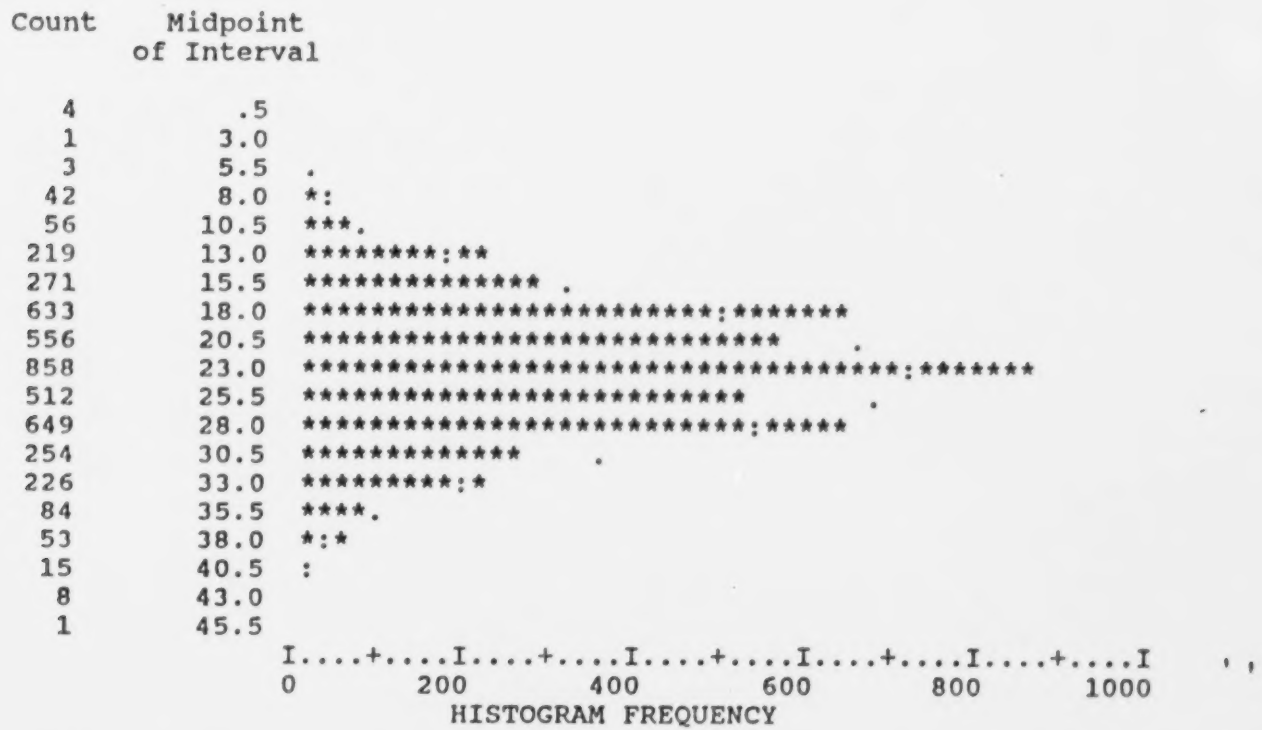
Normative Data: ROTC Cadet Mean = 100
Cutscore for admission to Advanced ROTC: 90
Scores between 70 and 90: "whole person review" prior to admission
Scores below 70: justification required prior to admission

FIGURE 2

WONDERLIC PERSONNEL TEST: ALL FY80–FY88 PARTICIPANTS

OVERALL: 23.98

- COLLEGE GRADUATES: 24.87
- HIGH SCHOOL GRADUATES: 22.27



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Normative Data: College Graduate Mean = 29.60

High School Graduate Mean = 20.80

FIGURE 3

EDUCATION LEVEL: ALL FY80–FY88 PARTICIPANTS

68 % HAVE COLLEGE DEGREE

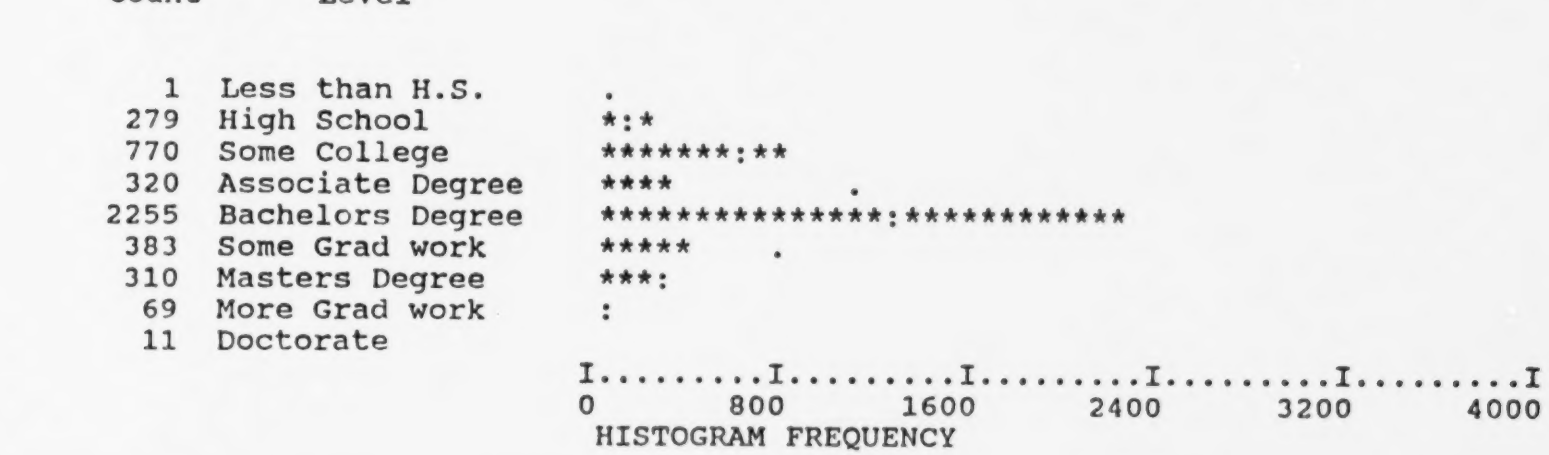

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FIGURE 4

UNDERGRADUATE GRADE POINT AVERAGE: ALL FY80–FY88 PARTICIPANTS

OVERALL: 3.05

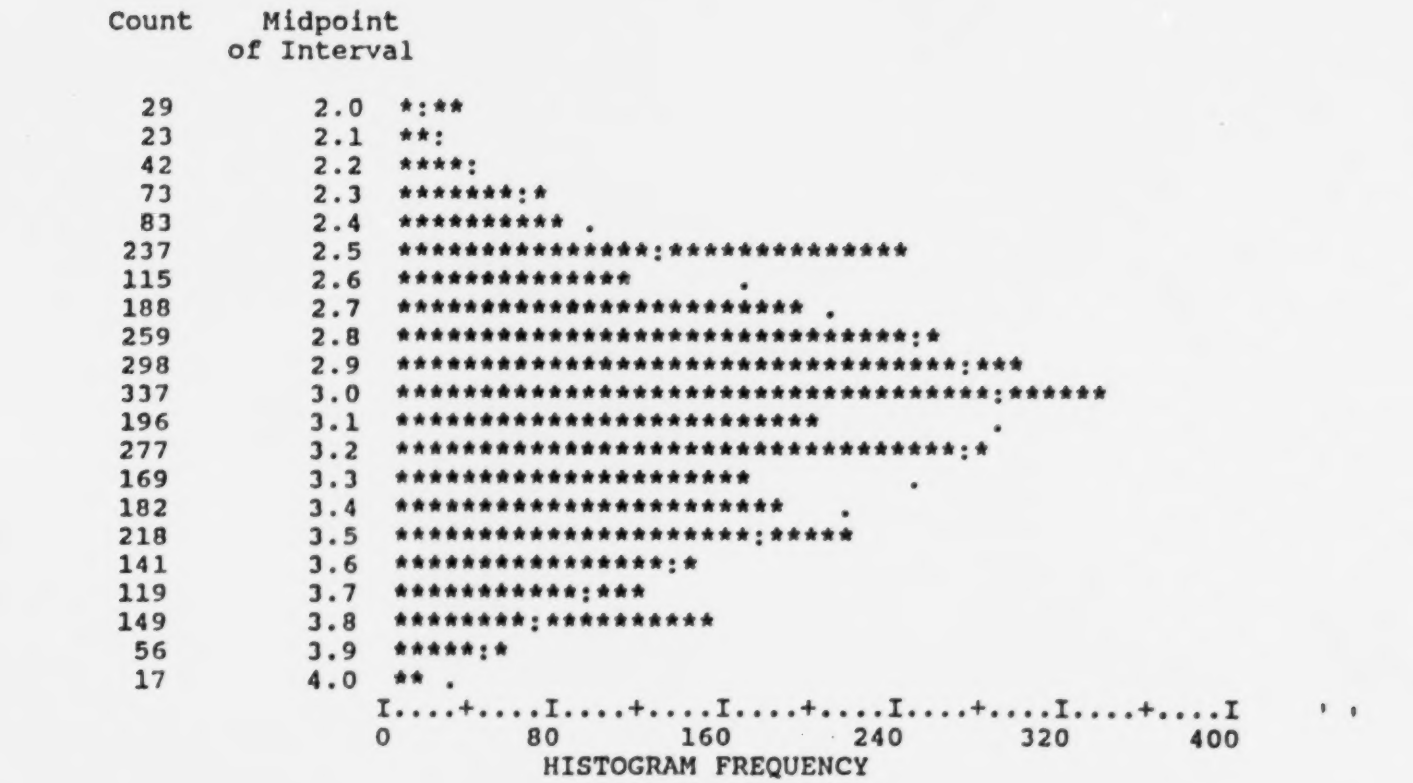

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FIGURE 5

GOURMAN RATING OF UNDERGRADUATE SCHOOL QUALITY: ALL FY80–FY88 PARTICIPANTS

OVERALL: 3.51

School Quality

Rating Category	Count	Midpoint of Interval	
	0	2.10	.
	11	2.25	* .
Marginal	6	2.40	* .
(14%)	48	2.55	***** .
	123	2.70	**********:
	228	2.85	**********:*******
	357	3.00	**********:**********
Adequate	464	3.15	**********:**********
(44%)	312	3.30	**********:***
	178	3.45	********** .
Acceptable	148	3.60	********** .
Plus	100	3.75	********** .
(19%)	312	3.90	**********:*******
Good	181	4.05	********** .
(13%)	77	4.20	******** .
	131	4.35	**********:**
	103	4.50	******:***
Strong	139	4.65	****:**********
(10%)	37	4.80	**:*
	17	4.95	*:
	0	5.10	.

I....+....I....+....I....+....I....+....I....+....I....+....I
0 100 200 300 400 500
HISTOGRAM FREQUENCY

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Gourman Rating Scale:

Marginal	Adequate	Acceptable Plus	Good	Strong
2.01–2.99	3.01–3.50	3.51–3.99	4.01–4.40	4.41–4.99

National Mean (1284 colleges and universities): 3.17

FIGURE 6

EDUCATION QUALITY: ALL FY80–FY88 PARTICIPANTS
(GPA x SCHOOL QUALITY RATING)

OVERALL: 10.64

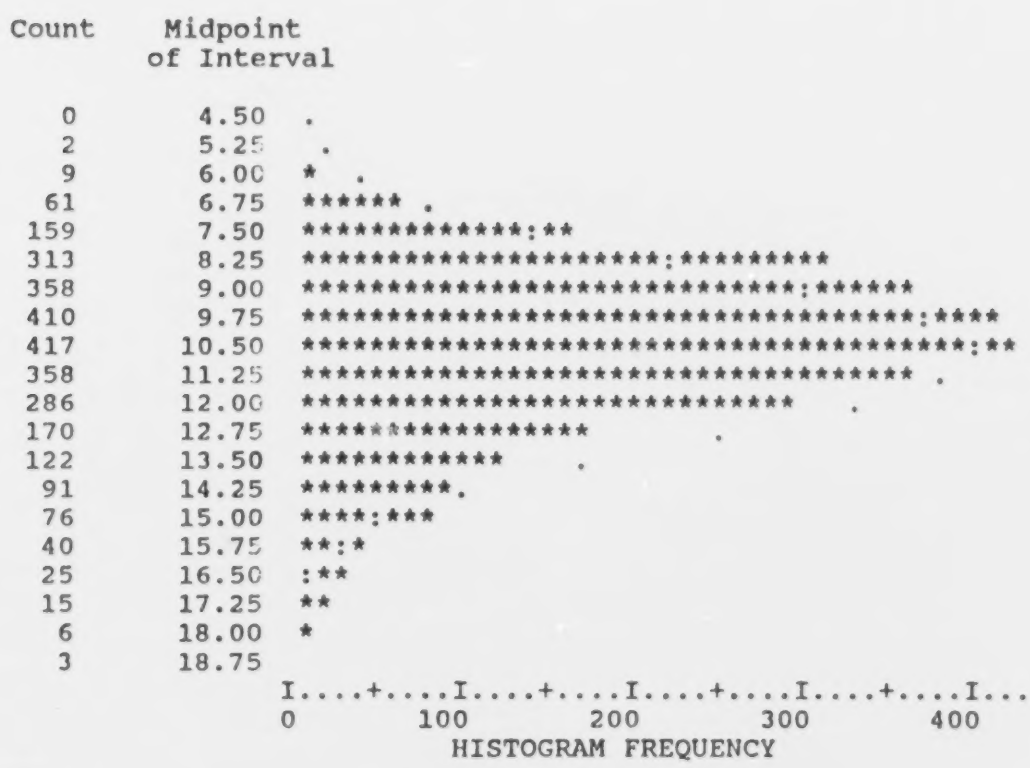

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FIGURE 7

QUALITY INDICATORS:
ALL FY80–FY88 PARTICIPANTS BY FISCAL YEAR OF ENTRY

	FY80 (399)	FY81 (359)	FY82 (382)	FY83 (393)	FY84 (665)	FY85 (606)	FY86 (598)	FY87 (712)	FY88 (458)
EDUCATION LEVEL	64 %	61 %	70 %	69 %	69 %	69 %	69 %	74 %	71 %
GPA	3.07	3.05	3.05	3.08	3.06	2.98	3.05	3.09	3.03
SCHOOL QUALITY	3.48	3.56	3.50	3.50	3.49	3.57	3.49	3.47	3.53
ROTC OSB	109.43	107.39	109.13	107.65	105.50	104.83	102.17	104.71	107.79
WONDERLIC	23.71	23.46	23.75	23.49	23.01	23.18	22.35	23.30	23.61
EDUCATION QUALITY	10.61	10.78	10.61	10.86	10.55	10.54	10.59	10.68	10.64

FIGURE 8

QUALITY INDICATORS: ALL FY80–FY88 PARTICIPANTS BY TYPE OF ENTRY LEVEL EMPLOYEE

	INTERN (3619)	FUNCTIONAL TRAINEE (1039)
EDUCATION LEVEL (PERCENT WITH B.A.)	73 %	52 %
GRADE POINT AVERAGE	3.06	3.03
GOURMAN RATING OF SCHOOL QUALITY	3.50	3.55
ROTC OFFICER SELECTION BATTERY	106.15	104.97
WONDERLIC PERSONNEL TEST	23.14	23.41
EDUCATION QUALITY	10.62	10.68

FIGURE 9

QUALITY INDICATORS: ALL FY80–FY88 PARTICIPANTS BY SOURCE OF INTAKE

	INTERNAL (2169)	EXTERNAL (2513)
EDUCATION LEVEL (PERCENT WITH B.A.)	40 %	93 %
GRADE POINT AVERAGE	3.14	3.01
GOURMAN RATING OF SCHOOL QUALITY	3.38	3.56
ROTC OFFICER SELECTION BATTERY	98.91	112.02
WONDERLIC PERSONNEL TEST	22.41	24.05
EDUCATION QUALITY	10.54	10.66

FIGURE 10

QUALITY INDICATORS: ALL FY80–FY88 PARTICIPANTS BY CAREER PROGRAM

	CP10 (216)	CP11 (630)	CP13 (411)	CP14 (451)	CP16 (895)	CP17 (186)	CP18 (434)	CP23 (378)	CP26 (113)
EDUCATION LEVEL	62 %	62 %	55 %	66 %	98 %	41 %	99 %	37 %	46 %
GPA	3.24	3.12	3.08	3.20	2.93	3.01	2.93	3.22	3.16
SCHOOL QUALITY	3.32	3.14	3.43	3.41	3.73	3.24	3.71	3.43	3.29
ROTC OSB	101	103	95	98	119	98	119	103	102
WONDERLIC	23.0	23.1	21.2	22.2	24.8	21.4	25.4	22.8	22.4
EDUCATION QUALITY	10.69	10.25	10.08	10.78	10.89	9.52	10.88	11.02	10.35

Only those career programs with adequate sample size are listed.
CP–10: Civilian Personnel Administration CP–11: Comptroller
CP–13: Supply Mgt CP–14: Contracting & Acquisition CP–16: Sci & Eng (N–C)
CP–17: Materiel Maint Mgt CP–18: Sci & Eng (RC) CP–23: ADP CP–26: Manpower

FIGURE 11

QUALITY INDICATORS: ALL FY80–FY88 PARTICIPANTS

SCIENTIST AND ENGINEERS v. NON–SCIENTISTS

	EDUCATION LEVEL	ROTC OSB	WONDERLIC	GPA	SCHOOL QUALITY	EDUC QUALITY
SCIENTISTS	99 %	119	25.0	2.9	3.7	10.89
Internal$_{(139)}$	94 %	117	25.1	2.9	3.6	10.54
External$_{(1179)}$	99 %	119	24.9	2.9	3.7	10.91
NON–SCIENTISTS	55 %	100	22.4	3.1	3.4	10.44
Internal$_{(1888)}$	37 %	98	22.0	3.2	3.3	10.53
External$_{(1141)}$	88 %	105	23.1	3.1	3.4,	10.37

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FIGURE 12

STANDARDIZED TEST SCORES: ALL FY80–FY88 PARTICIPANTS

SCIENTIST AND ENGINEERS v. NON–SCIENTISTS

	SCHOLASTIC APTITUDE TEST (SAT) (617)	AMERICAN COLLEGE TEST (ACT) (409)	GRADUATE RECORD EXAM VERBAL (GRE–V) (126)	GRADUATE RECORD EXAM QUANTITATIVE (GRE–Q) (128)	GRADUATE RECORD EXAM ANALYTICAL (GRE–A) (105)
OVERALL	1099	22.9	517	584	558
Scientists	1136	24.5	531	658	599
Non–Scientists	1039	20.9	492	461	477

Normative Data:
SAT: Range: 400–1600 Mean: 1000
ACT: Range: 1–35 Mean: 23.15
GRE–V, GRE–A, GRE–Q: Range 200–800 Mean: 500

FIGURE 13

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